

Oral Argument Requested

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INTRODUCTION

The San Pedro River is one of the last, major free-flowing river in the Desert Southwest, a sanctuary for millions of migratory birds, and home to multiple endangered species. Sustained by groundwater that percolates to the surface, the River stands out as a ribbon of green in an otherwise arid environment; it is a migratory corridor of hemispheric significance for the wildlife that find refuge and water in the relative cool of the River's cottonwood and willow forests.

Excessive groundwater pumping, however, has already begun to dry up the River and its tributaries, leaving little to no water to spare. Fort Huachuca, a U.S. Army base near Sierra Vista, is responsible for pumping on average 5,648 acre-feet of groundwater per year (afy),¹ making it the single largest consumer of groundwater in the upper San Pedro River basin. Its own modeling data shows that the Fort's pumping will significantly reduce baseflows along the San Pedro and Babocomari Rivers, causing multiple sections to dry up by 2050 if pumping is not curtailed. The resultant loss of surface flows jeopardizes the species that depend on these rivers for their survival and recovery, including four species protected by the Endangered Species Act (ESA): the western yellow-billed cuckoo, southwestern willow flycatcher, Huachuca water umbel, and northern Mexican gartersnake.

¹ One acre-foot equals about 326,000 gallons, or enough water to cover an acre of land one foot deep.

The Fort has a duty under the ESA to ensure that its groundwater-deficit pumping does not jeopardize the survival and recovery of these species or adversely modify their critical habitat. To that end, the Fort must consult with the Fish and Wildlife Service (“Service”) regarding any adverse effects of its groundwater pumping on listed species or critical habitat. The Service, in turn, must prepare a biological opinion that uses the best available scientific data to evaluate the effects of the Fort’s groundwater pumping. If the data shows that the Fort’s pumping will jeopardize listed species or adversely modify their critical habitat, the Service must either impose strict measures to avoid such an outcome or forbid the activity if no alternative is available.

Yet, the Service sidestepped these obligations by relying on a fatally flawed Biological Opinion to suggest that the Fort’s groundwater pumping would have a “positive impact” on surface flows, thereby benefiting listed species and their critical habitat. To reach this counterfactual conclusion, the Service disregarded the best available modeling data showing precipitous declines along the San Pedro and Babocomari Rivers due to the Fort’s pumping, credited the Fort with illusory groundwater savings that do not exist, and disregarded the devastating effects of climate change, which will exacerbate the Fort-induced groundwater deficit. Due to this incomplete and misleading analysis, there is no basis for the Service’s no-jeopardy determination. The Fort, in turn, adopted this faulty analysis and thereby failed to ensure its groundwater pumping will not jeopardize listed species or adversely modify critical habitat. Neither agency has reinitiated consultation to address new information that

highlights the Fort's significant adverse impacts on listed species and critical habitat that depend on the San Pedro and Babocomari Rivers.

This is not the first time these agencies have failed to comply with the ESA. Almost twenty years ago, this Court rebuked the Service for relying on a flawed biological opinion to "sidestep[] its obligation to make an accurate 'no jeopardy' decision based on the best available evidence." *See Ctr. for Biological Diversity v. Rumsfeld*, 198 F. Supp. 2d 1139, 1156 (D. Ariz. 2002). In 2011, the Court again rebuked the Service for numerous deficiencies in its subsequent biological opinion, including its attempt to rely on illusory water savings that were "not reasonably certain to occur." *Ctr. for Biological Diversity v. Salazar*, 804 F. Supp. 2d 987, 1002 (D. Ariz. 2011).

Despite these rulings, the Service and Fort have again attempted to mask the Fort's adverse impacts on listed species, and thereby avoid their obligations under the ESA. As a result, the Fort's groundwater pumping continues to deplete the aquifer and reduce critical baseflows along the San Pedro and Babocomari Rivers. It is time for the Court to put an end to this pattern of issuing unsound biological opinions that allow the Service and Fort to sidestep the ESA and continue groundwater-deficit pumping at great expense to listed species and critical habitat.

Plaintiffs Center for Biological Diversity, Maricopa Audubon Society, and Sierra Club (hereinafter the Conservation Groups) move for summary judgment to redress the Fort and Service's violations of the ESA and the Administrative Procedure Act (APA). The Court should set aside, vacate and remand the Biological Opinion. The Court should also order the Fort and Service to complete a new consultation process that accurately

accounts for the Fort's impacts on surface flows and ensures that its operations do not jeopardize the listed species that rely on the San Pedro's increasingly precious riparian ecosystem.

STATEMENT OF THE CASE

I. Statutory Background

A. The Endangered Species Act

The ESA is “the most comprehensive legislation for the preservation of endangered species ever enacted by any nation.” *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978). It represents a commitment “to halt and reverse the trend toward species extinction, whatever the cost.” *Id.* at 184.

To that end, the Service lists species that are “endangered” or “threatened” and designates their “critical habitat,” which are those areas “essential to the conservation of the species.” 16 U.S.C. §1533; *id.* §1532(5)(A) & (B); *id.* §1532(3) (defining “conservation” as recovery). Section 7 requires agencies to “[e]nsure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species.” 16 U.S.C. §1536(a)(2).

To comply with this substantive requirement, section 7 and the implementing regulations impose specific procedural duties upon federal agencies. Before beginning any “major construction activities,” the action agency (here, the Fort) must prepare a “biological assessment” to determine whether listed species or critical habitat “are likely

to be adversely affected” by the proposed action. 50 C.F.R. §402.12 (2012).² If so, the action agency must formally consult with the appropriate wildlife agency (here, the Service) before undertaking the action. 50 C.F.R. §402.14; *see Karuk Tribe of Cal. v. U.S. Forest Serv.*, 681 F.3d 1006, 1020 (9th Cir. 2012) (*en banc*).

During the formal consultation process, the Service must “[f]ormulate its biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.” 50 C.F.R. §402.14(g)(4). As part of this “detailed discussion of the effects of the action on listed species or critical habitat,” *id.* §402.14(h)(2), the Service must consider not just a species’ survival but also its recovery. *Id.* §402.02; *Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 524 F.3d 917, 932 (9th Cir. 2008). This obligation “provides some reasonable assurance that the agency action in question will not appreciably reduce the odds of success for future recovery planning, by tipping a listed species too far into danger.” *Nat’l Wildlife Fed’n*, 524 F.3d at 936.

Based on the biological opinion, the Service can find (1) no jeopardy or no adverse modification; (2) that the action will cause jeopardy or adverse modification but such jeopardy or adverse modification can be avoided by implementing certain reasonable and prudent alternatives to the proposed action as designed; or (3) that jeopardy or adverse modification is unavoidable and thus the action cannot proceed. 50

² 50 C.F.R. Part 402 was revised after the Fort and Service’s consultation. All citations to 50 C.F.R. Part 402 refer to the version in effect during the 2014 consultation process.

C.F.R. §402.14(h)(3). If the Service concludes that jeopardy or adverse modification is likely, then any take resulting from the proposed action is subject to section 9 liability (unless that take is authorized by other provisions of the Act). *See Sierra Club v. Babbitt*, 65 F.3d 1502, 1505 (9th Cir. 1995).

Throughout the consultation process, the Service must use “the best scientific and commercial data available.” 16 U.S.C. §1536(a)(2). To comply with this requirement, the Service “cannot ignore available biological information.” *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988).

The duty to consult is ongoing. *See Cottonwood Env'tl. Law Ctr. v. U.S. Forest Serv.*, 789 F.3d 1075, 1086 (9th Cir. 2015). The Service and action agency must therefore reinitiate consultation if “new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered” or “a new species is listed or critical habitat designated that may be affected by the identified action.” 50 C.F.R. §402.16(b), (d).

The ESA provides a unique consultation mechanism for species or critical habitat that have been proposed for listing but are not yet listed. Section 7(a)(4) mandates that an action agency “confer” with the Service on any action that is “likely to jeopardize the continued existence” of any “species proposed to be listed” or “result in the destruction or adverse modification of critical habitat proposed to be designated for such species.” 16 U.S.C. §1536(a)(4); 50 C.F.R. §402.10. If the conference is “conducted in accordance with the procedures for formal consultation,” the resulting opinion is called a “conference opinion.” 50 C.F.R. §402.10(d). Once the species is listed or critical habitat designated,

the Service must either formally adopt the conference opinion, so long as there is no significant new information or reinitiate formal consultation. *Id.*

B. The Service and Fort Have Repeatedly Failed to Comply with the ESA.

For over two decades, this Court has repeatedly admonished the Fort and Service for their failure to protect the endangered species that rely on the San Pedro River for their survival.

Beginning in 1995, Judge Marquez observed that “creeping development and unrestrained draining of the aquifer represents a real threat to the [San Pedro] Riparian Area,” and “[t]he Army must not turn a blind eye to this problem or to the fact that its actions may tend to exacerbate it.” *Sw. Ctr. for Biological Diversity v. Perry*, CIV 94-598 TUC ACM (D. Ariz. Aug. 30, 1995) at 21-22 (quoted in *Rumsfeld*, 198 F. Supp. 2d at 1144).

Subsequently, in 2002, this Court held unlawful and set aside the Biological Opinion prepared by the Service in 1999, concluding that there was “no factual basis to support the [Service’s] decision of ‘no jeopardy.’” *See Rumsfeld*, 198 F. Supp. 2d at 1153. As the Court explained, the Service “attempted to sidestep[] its obligation to make an accurate ‘no jeopardy’ decision” by relying on the Fort’s future commitment to identify measures to mitigate its groundwater pumping. *Id.* at 1156. The Court found this delay tactic violated the ESA as it “permits the Army to continue deficit-inducing operations when a longer-term analysis would reveal those operations to be causing jeopardy.” *Id.* at 1154. The Court also faulted the agency for relying on mitigation measures that did not “compensate for or mitigate the effects of groundwater pumping”

but instead simply “mask[ed] the effects of the [Fort’s] deficit groundwater pumping.” *Id.* at 1155. Because the 1999 Biological Opinion “failed to consider all the relevant factors,” the Army “committed a clear error in judgment” in relying on it, and thereby violated its independent substantive obligations under Section 7 of the ESA. *Id.* at 1157.

The Service issued a new Biological Opinion in 2002, which determined that the Army’s ongoing operations would not jeopardize the umbel or flycatcher as long as the Fort’s population did not grow by more than 500 people by 2011. The Fort’s population, however, swelled beyond 500 people, the groundwater deficit continued to grow, and the River’s condition worsened. Nonetheless, the Fort failed to reinitiate consultation. *See Ctr. for Biological Diversity v. U.S. Dep’t of Housing and Urban Dev.*, Civil No. 05-261-TUC-CKJ (D. Ariz. May 31, 2005), First Amended Complaint at 20-21, Dkt. # 18. Accordingly, the Center for Biological Diversity and others challenged the 2002 Biological Opinion, and the parties ultimately settled the lawsuit in August 2006, resulting in a new Biological Opinion in 2007. *See id.*, Stipulated Settlement Agreement for the Seventh Claim for Relief, Dkt. # 44, 49.

This Court invalidated the 2007 Biological Opinion based on numerous defects in its jeopardy and adverse modification analyses. *Salazar*, 804 F. Supp. 2d at 1010. These defects included failure to analyze effects of the Fort on species’ recovery and failing to provide a rational connection between findings made and the conclusion that operations would not inhibit recovery. *Id.* at 1010. The Court also held that the 2007 Biological Opinion relied on mitigation measures that “are not reasonably specific nor reasonably certain to occur.” *Id.* Accordingly, in 2011, the Court remanded the matter to the Service

and the Fort to comply with the ESA. The effort resulted in the instant Biological Opinion.

II. Factual Background

A. The San Pedro River: A World Renowned Biodiversity Hot Spot.

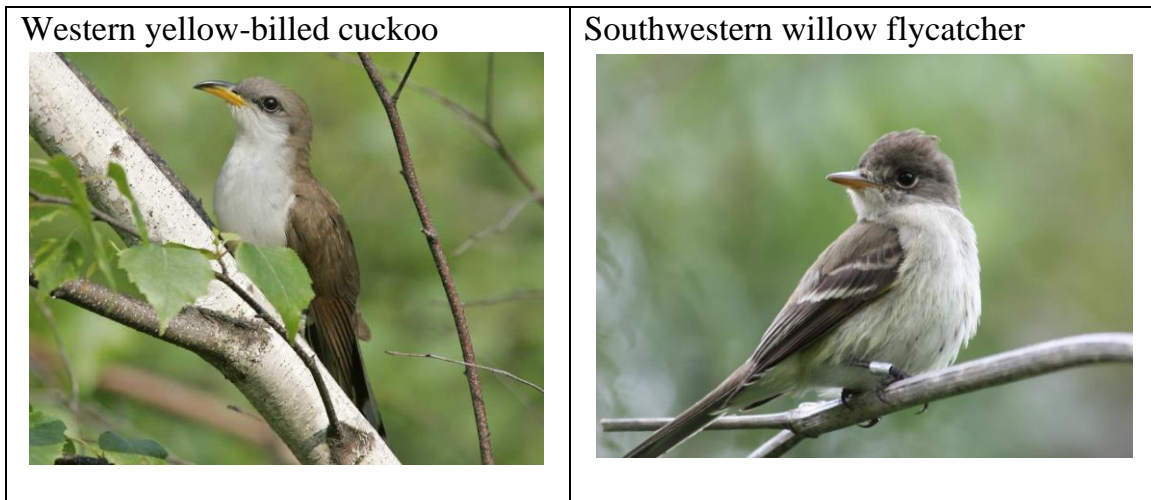
The San Pedro River is the only remaining free-flowing, undammed river in the Desert Southwest. *See* Conservation Groups’ Statement of Facts, ECF No. 19 (“SOF”) ¶¶1, 4-6. It is also a world-renowned biodiversity hot spot of hemispheric significance. SOF ¶¶1-3. It flows north from Mexico through southeastern Arizona until its confluence with the Gila River, providing a lush corridor of cottonwood and willow forests that supports 84 species of mammals, 14 species of fish, and 41 species of reptiles and amphibians. SOF ¶¶3-4. Between 5 and 10 million migratory songbirds use the San Pedro River annually for migration and breeding. SOF ¶2.



In 1995, the American Bird Conservancy recognized the San Pedro as its first “globally important bird area” in the United States due to its hemispheric significance. *Id.*

The San Pedro is a critical wildlife refuge in part because so many other desert rivers in the Southwest have been degraded or destroyed by human alteration, including groundwater pumping. SOF¶7. In 1988, Congress recognized the San Pedro’s importance when it created the San Pedro Riparian National Conservation Area (SPRNCA) “to protect the riparian area and the aquatic, wildlife, archaeological, paleontological, scientific, cultural, educational, and recreational resources of the public lands surrounding the San Pedro River.” 16 U.S.C. §460xx.

Among the many species that rely upon the San Pedro and its associated riparian habitat are four species protected under the ESA: the western yellow-billed cuckoo, the southwestern willow flycatcher, the Huachuca water umbel, and the northern Mexican gartersnake. SOF¶9.





The cuckoo is a large, slim bird with a bright yellow beak and a long, spotted tail. SOF¶11. It breeds in riparian habitat along low-gradient rivers and streams. *Id.* The cuckoo, however, has suffered significant declines in its riparian habitat, including the loss of almost 95 percent of its habitat in Arizona. SOF¶12. The Service listed the species as threatened in 2014, and proposed an 83-mile segment of the upper and middle San Pedro River as critical habitat for the species. SOF¶13.

The southwestern willow flycatcher is a small grayish-green bird surviving only in dense riparian willow and cottonwood forests. SOF¶17. The Service listed the flycatcher as endangered in 1995 due to large-scale losses of cottonwood-willow riparian habitats and subsequently designated the lower San Pedro River as critical habitat essential to the conservation of the species. SOF¶¶17-19.

The Huachuca water umbel is a semiaquatic perennial plant with slender leaves that grow from rhizomes. SOF¶20. It depends on a stream channel that is permanently wet or nearly so for growth and reproduction. SOF¶¶20-21. The Service listed the species as endangered in 1997, and subsequently designated critical habitat along 33.7

miles of the San Pedro River, which is one of the last remaining sources of habitat for the species. SOF¶20.

The northern Mexican gartersnake is a riparian obligate snake species, found along the San Pedro River. SOF¶23. Northern Mexican gartersnake populations have declined precipitously over time, and there are currently just five known viable populations. SOF¶24. The Service listed the northern Mexican gartersnake as threatened in 2014, and proposed the length of the San Pedro River—from the Mexico border to the River’s confluence with the Gila River—as critical habitat. SOF¶23.

B. Groundwater Pumping and Climate Change Threaten the San Pedro River and Listed Species.

Surface water in the San Pedro and Babocomari Rivers is comprised of “stormflow” and “baseflow.” SOF¶25. Stormflow results from precipitation whereas baseflow is water that flows in the river in the absence of a rainfall event. *Id.* Baseflow in both rivers is the result of groundwater discharge to the rivers from the regional and alluvial aquifers. *Id.*

Baseflow plays a critical role in sustaining the year-round surface flows along the San Pedro and Babocomari Rivers. SOF¶26. Rainfall runs off the surrounding mountains, percolates down through the valley soil, and recharges the regional aquifer. *Id.* These recharge flows create pressure in the aquifer, which drives groundwater laterally and upward into both the San Pedro and Babocomari Rivers as year-around baseflows that support riparian habitat and species. *Id.*

Groundwater pumping reverses this process by removing groundwater, lowering the aquifer, and creating an underground “cone of depression” that gradually expands outwards over time. SOF¶28. As the cone of depression grows in size, it captures an increasing proportion of baseflow in nearby streams and depleting their flows. *Id.* Once the cone of depression lowers the water table below the bottom of the streambed, the river ceases to receive any baseflow and becomes either intermittent (replenished by seasonally recovered groundwater levels) or ephemeral (flowing only in response to storm events). SOF¶¶28-29.

There is a well-documented time-lag between groundwater pumping and subsequent stream depletion. SOF¶30. A well causing or contributing to a cone of depression can negatively affect baseflows even centuries after it stops pumping. *Id.* The following figure depicts how groundwater pumping creates a cone of depression with residual effects that deplete streamflows long after pumping ceases.

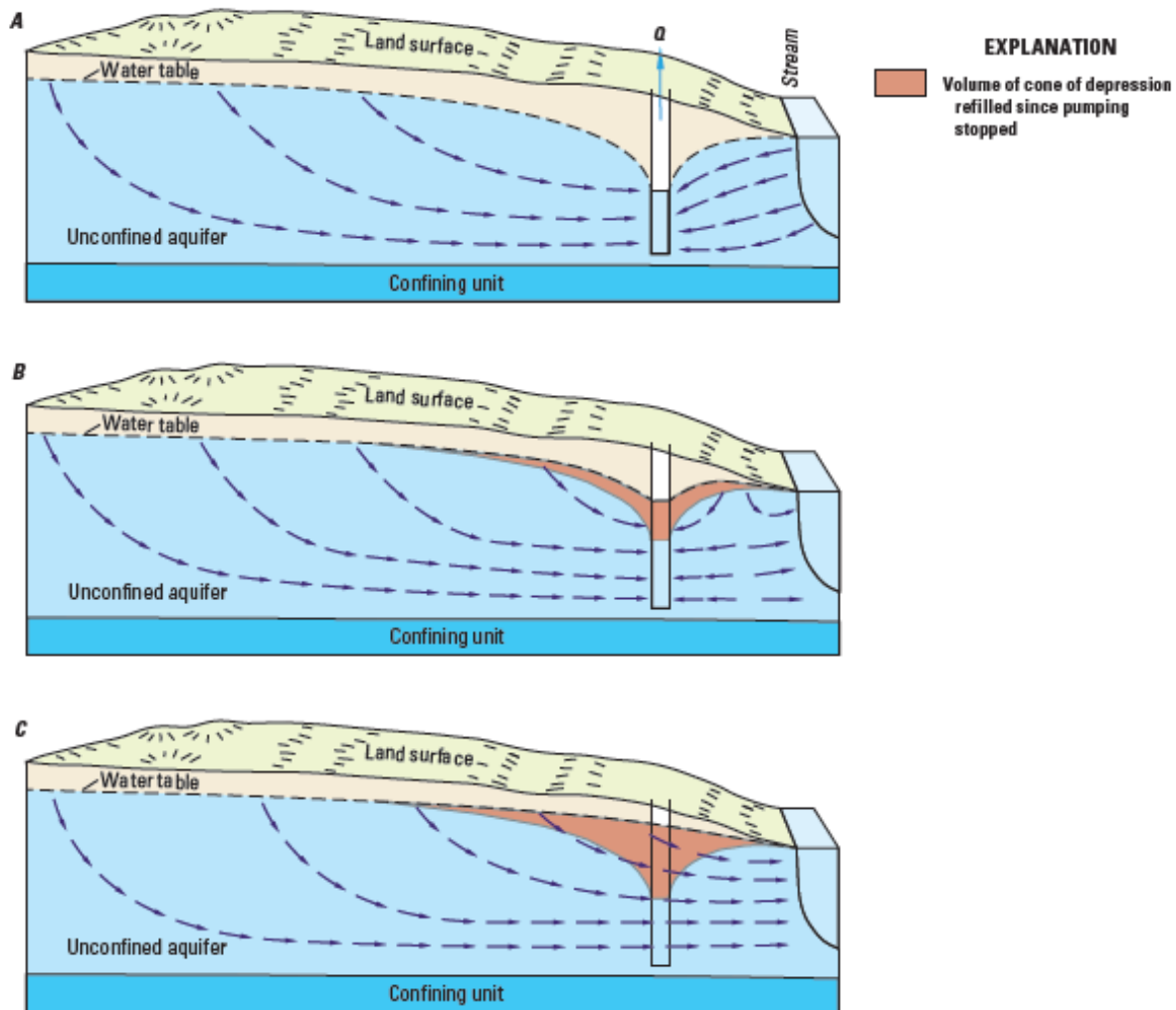


Figure 32. Residual effects of streamflow depletion after pumping stops. *A.* Prior to the well being shut down, the pumping rate at the well is balanced by decreases in aquifer storage and by streamflow depletion, which consists of captured groundwater discharge and induced infiltration of streamflow. *B.* After pumping stops, groundwater levels begin to recover, and water flows into aquifer storage to refill the cone of depression created by the previous pumping stress. *C.* Eventually, the system may return to its pre-pumping condition with no additional changes in aquifer storage or streamflow depletion. [Q , pumping rate at well]

Due to these time-lagged effects, hydrologists use modeling periods that encompass the residual effects of groundwater pumping on baseflows. *Id.*

Hydrologists have developed sophisticated models in order to predict the residual effects of groundwater pumping over time. *See* SOF ¶¶ 53-56, 61-63. In 2007, the U.S. Geological Survey (USGS) developed a quantitative model to simulate the long-term

impacts of groundwater pumping in the upper San Pedro River Basin. SOF¶54. The model covers the entire Upper San Pedro Basin watershed in Mexico and extends downstream to the USGS gauge near Tombstone, which is just downstream from the confluence of the Babocomari River. SOF¶¶58-60.

Groundwater pumping and the associated cone of depression pose a grave threat to the San Pedro's riparian ecosystems. SOF¶31. Cottonwood-willow gallery forests require fairly-persistent streamflows and shallow (high) groundwater depths to survive. *Id.* Even minor declines in groundwater levels can have devastating impacts on riparian vegetation and the associated ecosystem. *Id.* The Service has repeatedly identified groundwater pumping as a serious threat to the listed species that depend on the San Pedro River's baseflows and riparian habitat. SOF¶32. The Service has also repeatedly warned that pumping has already begun to dry up the San Pedro River and its riparian vegetation and springs, leaving little to no water to spare for these threatened and endangered species. SOF¶¶32-37.

C. The Fort's Pumping Continues to Reduce Baseflows along the San Pedro and Babocomari Rivers.

The Fort is responsible for pumping on average 5,648 afy of groundwater, making it the single largest consumer of groundwater in the upper San Pedro River basin. SOF¶¶48, 51. This figure includes the Fort's on-post groundwater demand, as well as the groundwater pumping in the Sierra-Vista watershed attributable to the Fort (i.e., off-post pumping). SOF¶¶50-51.

The Fort hired an independent hydrology firm, GeoSystems Analysis, Inc., to model the impacts of the Fort's groundwater pumping on the San Pedro and Babocomari Rivers through 2105. SOF¶52. The firm produced a report, known as the GeoSystems Report, which outlines its methodology and results. *Id.* The report identified the USGS groundwater model as the best available tool for predicting the impacts of the Fort's pumping on baseflows. SOF¶53. It then updated the model based on the anticipated pumping levels for the Fort and Sierra Vista. SOF¶55. The GeoSystems Report ran the updated model through 2105, mapping the results at three points (2003, 2050, and 2105) to reflect the Fort's residual impact on both rivers over time. SOF¶¶55-58.

The results were striking. The report highlighted the fact that the Fort's pumping will cause "peak impacts" at the confluence of the San Pedro and Babocomari Rivers by 2050, including a projected loss of up to three cfs at the Tombstone gauge on the San Pedro River³ and up to two cfs along the lower Babocomari River, as depicted in red in the figure below. SOF¶59.

³ The Tombstone Gauge is located about two miles downstream from the State Route 82 bridge across the San Pedro River. SOF¶58 n.2. That places it at the top edge of the figures below, just north of the Babocomari and San Pedro Rivers' confluence. *Id.* Due to that downstream location, it reflects the total impacts of the Fort's pumping on both the San Pedro and Babocomari Rivers. *Id.*

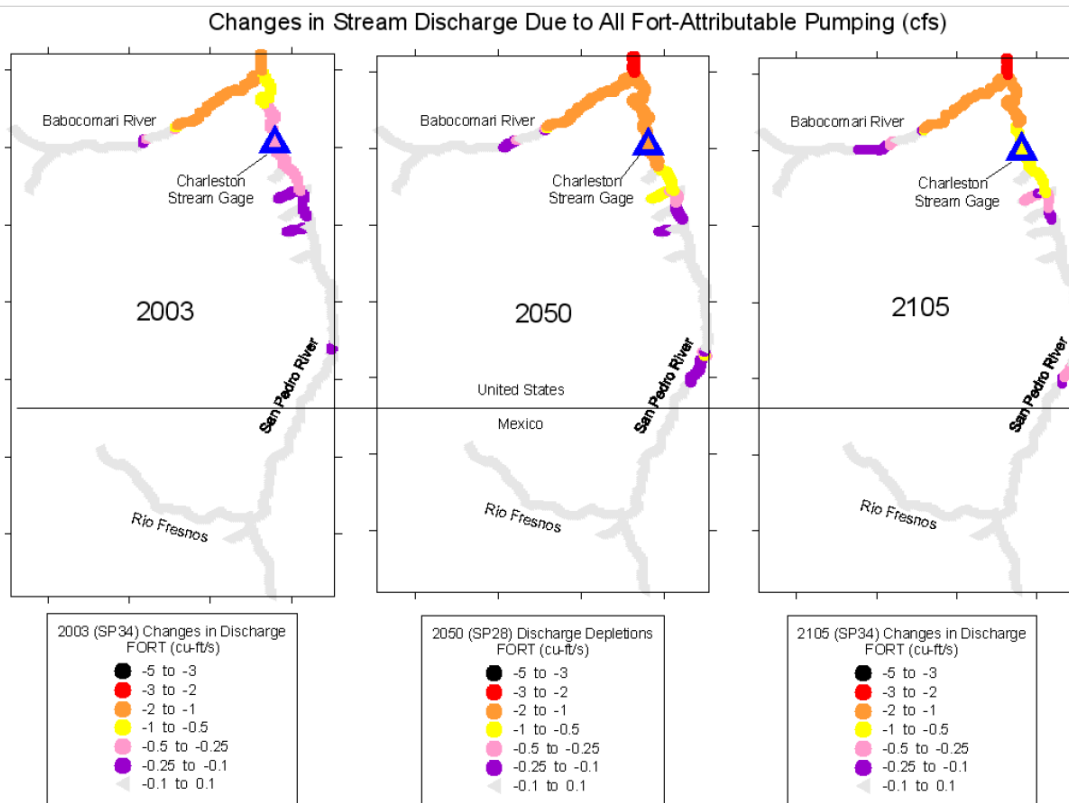


Figure 24. Simulated Pumping-induced Changes in Stream Discharge from All Fort-attributable Pumping, 1940-2105.

Between 2003 and 2050, Fort-attributable pumping causes additional declines of up to 2 cfs along the San Pedro and Babocomari Rivers, which “pumps dry” multiple segments of these rivers. SOF¶¶59-60.

Another hydrologist, Dr. Laurel Lacher, updated the USGS Groundwater Model in 2011 with similar estimates of future pumping. SOF¶¶61. She then used the model to predict the impacts of groundwater drawdown on the San Pedro and Babocomari Rivers from 2003 to 2105. SOF¶¶62. Her results show a steady decline in baseflows on the San Pedro River near Tombstone, “dropping to zero flow by October 2100.” SOF¶¶63. These modeling results foretell devastating impacts to the Rivers’ riparian ecosystems, as well as the endangered species that depend on those flows for their survival. SOF¶¶31-32.

D. Climate Change Will Exacerbate the Impacts of the Fort's Pumping by Reducing Groundwater Recharge.

Climate change will exacerbate the impacts of the Fort's groundwater pumping by reducing recharge rates in the Upper San Pedro River basin. SOF¶¶38-43. All the models used by the International Panel on Climate Change (IPCC) project temperature increases in the southwestern United States through the 21st century. SOF¶40. In 2007, scientists applied the available modeling results to the upper San Pedro River through a process known as "downscaling" and concluded that recharge rates in the basin would decrease by approximately 1,520 afy in 2030, 2,660 afy in 2050, and up to 5,700 afy by 2100. SOF¶¶41-42. Many of the modeled predictions about climate change impacts have already occurred due to the accelerating rate of climate change. SOF¶¶119-20. Yet, neither the GeoSystems Report nor the 2011 Lacher study factored these steep declines in recharge into the USGS groundwater model. SOF¶¶94-95. As a result, their already-stark modeling results underestimate the impacts of the Fort's pumping on the River. *See* SOF¶¶95-96.

E. The Service and Fort Relied on a Flawed Biological Opinion and Inadequate Consultation to Sidestep a Jeopardy Finding.

The Fort prepared a Programmatic Biological Assessment in 2013 to evaluate whether its operations may affect federally listed and proposed species and their critical habitats. SOF¶64. The Fort concluded its actions would have no effect on the flycatcher, may affect the Huachuca water umbel, and would benefit the cuckoo and gartersnake (both of which were proposed species at the time). *Id.* The Service accepted these astonishing findings in its May 14, 2014 Amended Biological and Conference Opinion,

and thus concluded the Fort's operations would not jeopardize listed species or adversely modify critical habitat. SOF¶65.

Neither the Fort nor the Service acknowledged or accounted for the peak declines in baseflows along the San Pedro and Babocomari Rivers by 2050, as shown by the GeoSystems Report. SOF¶¶58-59. Instead, both agencies disregarded that modeling data—which they had in their possession—by cutting short their analysis in 2030, just before the cone of depression created by the Fort's pumping causes a precipitous decline in baseflows along both Rivers. SOF¶67. Based on this truncated analysis, the agencies falsely claimed the Fort's pumping would only have “positive impacts” on the River's baseflows. SOF¶68.

The agencies also sidestepped any responsibility for the adverse impacts of the Fort's groundwater pumping by claiming that the Fort would actually create a “net groundwater surplus” from 2014 onwards. SOF¶75. To reach that conclusion, the Service credited the Fort with thousands of acre-feet of “water savings,” including a 2,588 afy credit for obtaining an easement in 2014 that purportedly retired agricultural irrigation on the so called Preserve Petrified Forest property. SOF¶¶76, 83. The easement did not, however, retire an active water use on the property, as irrigation had ceased by 2005—almost a decade prior to the Fort's easement. SOF¶78. Furthermore, the Service acknowledged that it was “uncertain[]” when irrigation “might recommence,” if ever. SOF¶82. In fact, the property lacked the center pivots needed for irrigation. SOF¶83. Neither the Service nor Fort identified any plan to replace that critical, costly infrastructure, let alone undertake agricultural irrigation.

Instead, the Fort identified residential development as a “major trend” occurring in rural areas in Cochise County. SOF¶79. Consistent with that trend, the Preserve Petrified Forest property was zoned for residential development, marketed for residential development, and ultimately purchased for residential development. SOF¶80. Without its illusory credits for offsetting nonexistent agricultural irrigation, the Fort would be liable for at least a groundwater *deficit* of at least 1,419 afy—a shortfall the Service never acknowledged or analyzed in the Biological Opinion. SOF¶84.

The Service also used a faulty accounting method to overstate the value of the Fort’s easements, even assuming they retired future agricultural irrigation.⁴ SOF¶¶85-91. It credited the Fort with groundwater savings equivalent to the total amount of groundwater that would have hypothetically been used to irrigate alfalfa. SOF¶¶90-91. But, as is common knowledge to hydrologists, a substantial amount of that irrigation would have returned to the aquifer by percolating through the ground, thereby recharging groundwater levels. SOF¶88. It is thus the *net* groundwater use—the total amount of irrigation minus the return flows to the aquifer—that reflects the water savings created by retiring irrigation on these properties. SOF¶¶88, 92-93. The Service ignored this key formula and instead granted the Fort credit for the full amount of irrigation. SOF¶¶90-91. This error overstated the value of the easements by at least 1,357.2 afy. *See* SOF¶¶89-91.

⁴ The Service credited the Fort with purportedly retiring irrigation on two properties: The Preserve Petrified Forest Parcel and the Clinton/Drijvers Ranch. SOF¶85.

By disregarding the modeling data and relying on illusory water savings, the Service never addressed the adverse impacts of the Fort's groundwater deficit pumping on listed species that depend on surface flows along the San Pedro and Babocomari Rivers. *See* SOF¶¶85-93. At no point did the Fort or Service account for the combined effects of the Fort's pumping and climate change, either. SOF¶¶94-97. The Service also dismissed the short-term adverse impacts to listed species, such as the water umbel, based on the false assertion that the Fort's pumping would improve baseflows. SOF¶¶98-100.

F. The Service and Fort Have Not Reinitiated Consultation to Consider Significant New Information Revealing Additional Adverse Impacts.

Since the Service issued its Biological Opinion, new information has revealed additional adverse impacts to listed species and critical habitat that the agencies have yet to analyze. SOF¶¶115-25. First, the Fort's own data reveals significant shortfalls in its efforts to recharge groundwater and mitigate the impacts of its groundwater pumping. SOF¶¶115-18. These shortfalls further exacerbate the adverse impacts of the Fort's deficit pumping. *Id.*

Second, new studies show that climate change will have an even greater impact on the Desert Southwest, and decades faster than previously anticipated. SOF¶¶119-20. In particular, climate models project an even greater rise in average temperatures, which will further deplete groundwater recharges levels and compound the effects of the Fort's groundwater deficit pumping on streamflows. SOF¶120.

Third, new modeling shows that the Fort's groundwater pumping will cause significant declines in surface flows along the San Pedro and Babocomari Rivers—a

decline the Service wholly overlooked in its Biological Opinion. SOF¶¶121-25. In 2019, Dr. Robert Prucha, a hydrologist with Integrated Hydro Systems, built on the modeling in the GeoSystems Report to assess the effects of Fort-attributable pumping on baseflows through 2100. SOF¶121. Prucha's report identifies even greater declines along the San Pedro River than those identified in the GeoSystems Report, including a loss of 1.3 cfs at the Tombstone gauge. *Id.* The Service has yet to analyze these significant declines in baseflows on listed species and critical habitat. SOF¶¶121-25.

The Conservation Groups alerted the agencies to this significant new information on December 3, 2019 and requested that they reinitiate consultation to address the oversights in the Biological Opinion. SOF¶130. Because the agencies failed to remedy the alleged violations, the Conservation Groups file a complaint sixty days later, followed by this motion for summary judgment. *See* Compl., ECF No. 1 ¶6.⁵

The Conservation Groups' members have established their standing to pursue this action by providing three declarations showing that the Fort's groundwater pumping threatens their members' recreational interests, enjoyment of listed species that depend on

⁵ The Conservation Groups have attached to their statement of facts three of the studies they provided the agencies as part of their request for reinitiation. SOF¶130. In addition, the Conservation Groups have provided the Court with two documents that were before the agencies during the consultation process and contradict their claimed water savings for the Preserve Petrified Forest. SOF¶¶78 n.3, 80 n.4. These documents are part of the "whole administrative record," which "includes evidence contrary to the agency's position." *See Thompson v. U.S. Dep't of Labor*, 885 F.2d 551, 555 (9th Cir. 1989). The Court may also consider the documents pursuant to the ESA citizen-suit provision. *See W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 495-97 (9th Cir. 2011).

the San Pedro and Babocomari Rivers, and adjacent property. SOF¶¶126-27. These harms are caused by the agencies’ reliance on the fatally flawed Biological Opinion. SOF¶128. The harms can be remedied by an order directing the agencies to comply with the ESA and ensure the Fort’s pumping does not jeopardize listed species or adversely modify critical habitat—something it has failed to do for almost two decades now. SOF¶129; *see Rumsfeld*, 198 F. Supp. 2d at 1157 (2002) (“The Army knew of the need to take immediate and drastic measures to maintain flows in the San Pedro River.”).

STANDARD OF REVIEW

Summary judgment is “a particularly appropriate tool for resolving claims challenging agency action.” *WildEarth Guardians v. U.S. Fish & Wildlife Serv.*, 416 F. Supp. 3d 909, 924 (D. Ariz. 2019).

The Administrative Procedure Act (“APA”) governs the court’s review of agency decisions under the ESA. *Karuk Tribe*, 681 F.3d at 1017. Under section 706 of the APA, the reviewing court must determine whether the Service’s decision was “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. §706(2)(A). An agency action is arbitrary and capricious if the agency has:

relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Ctr. for Biological Diversity v. U.S. Bureau of Land Mgmt., 698 F.3d 1101, 1109 (9th Cir. 2012) (quoting *Motor Vehicle Mfrs. Ass’n v. State Farm*, 463 U.S. 29, 43 (1983)).

In reviewing agency action under this standard, courts have an obligation to undertake a “searching and careful” review of the administrative record. *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 378 (1989). The Court must “ensure that the agency considered the relevant factors and articulated a rational connection between the facts found and the choices made.” *Greater Yellowstone Coal., Inc. v. Servheen*, 665 F.3d 1015, 1023 (9th Cir. 2011).

ANALYSIS

I. The Service Violated the ESA by Assuming, Contrary to the Evidence, that the Fort’s Groundwater Pumping Would Have a Positive Impact on the San Pedro.

The Service sidestepped a jeopardy finding by asserting that the Fort, despite pumping 5,648 afy of groundwater, would have a net “positive impact” on surface flows, thereby benefiting listed species and their critical habitat. SOF¶68. To reach this unsound conclusion, the Service committed four fatal errors in the Biological Opinion. First, it failed to disclose or analyze the best available scientific data showing a precipitous decline in baseflows by 2050 due to the Fort’s groundwater pumping. Second, it relied on illusory water savings and faulty accounting to transform a 5,648 afy groundwater deficit into a nonexistent surplus. Third, it assumed away the significant declines in groundwater recharge due to climate change, and thereby failed to account for this severe threat to listed species that depend on the San Pedro River’s flows. Fourth, it summarily dismissed the short-term adverse impacts to listed species based on the false assertion that baseflows would improve. Each of these errors rendered the Service’s no-jeopardy conclusion arbitrary, capricious, and contrary to the ESA.

A. The Service Disregarded the Best Available Science Showing Precipitous Declines in Baseflows.

The ESA requires agencies to base their decisions on “the best scientific and commercial data available.” 16 U.S.C. §1536(a)(2). Congress imposed this requirement “to ensure that the ESA not be implemented haphazardly, on the basis of speculation or surmise.” *Bennett v. Spear*, 520 U.S. 154, 177 (1997). Under this mandate, the Service “cannot ignore available biological information.” *Conner*, 848 F.2d at 1454. Yet, it did just that in this case by disregarding the groundwater modeling results in its own files, which reveal a precipitous decline in baseflows due to the Fort’s pumping.

The Service identified the USGS groundwater model for the upper San Pedro River basin as “the best science available to analyze the potential timing and location of future baseflow conditions.” SOF¶66. The USGS calibrated the model with over one-hundred years of data to ensure that it “reasonably represents actual outcomes resulting from observed conditions.” SOF¶54. GeoSystems Analysis, Inc. updated the model and ran a forward simulation through 2105. SOF¶55. The resultant GeoSystems Report documents those modeling results, highlighting “peak declines” in 2050 when the Fort would “pump[] dry” five reaches of the Babocomari and San Pedro Rivers. SOF¶60.

The Service never, however, analyzed the modeling data in the GeoSystems Report that revealed significant declines in surface flows by 2050. Instead, it only disclosed a snippet of the modeling results from 2003 to 2030. SOF¶67. Based on this incomplete excerpt, the Service claimed that the Fort would have “positive impacts” on the San Pedro River, including a 0.4 cfs increase in surface flows at the Tombstone gauge

by 2030. SOF¶¶68. But that narrow and self-serving snapshot fails to acknowledge the hydrological forces set in motion by the Fort’s pumping, which creates an expanding cone of depression that captures a significant amount of baseflow along the San Pedro River in 2050, resulting in a precipitous decline of up to 3 cfs at the Tombstone gauge. SOF¶¶50. In fact, this decline is so significant that it “pump[s] dry” two stretches of the River, desiccating the habitat on which the listed species depend for their survival and recovery. SOF¶¶60, 74. Rather than analyzing this available data, the Service cherry-picked the modeling results to create the impression of positive impacts—a misleading result that violates the ESA’s best available science mandate. *See Ctr. for Biological Diversity v. Zinke*, 900 F.3d 1053, 1068-69 (9th Cir. 2018) (holding that the Service violated the ESA because it selectively cited the favorable “portion” of a study without providing an “adequate explanation” for disregarding the “other aspects” of the study contrary to its conclusions).

The Service committed this same error for the Babocomari River, resulting in another counterfactual conclusion defied by the modeling results in its files. Based on the same, misleading snippet of modeling results from 2003 to 2030, the Service asserted that surface flows would only decline by 0.12 cfs along the Babocomari River, which it dismissed as insignificant. SOF¶¶70-73. But this incomplete presentation fails to acknowledge the far greater decline identified in the Geosystem Report of 2 cfs by 2050—a decline twenty times worse than what the Service disclosed and analyzed in the Biological Opinion. SOF¶74. In fact, the GeoSystems Report shows that three segments of the Babocomari River would be “pumped dry” by 2050—an impact disclosed nowhere

in the Biological Opinion. SOF¶¶60, 74. Rather than acknowledging these peak declines, the Service simply blinded itself to the evidence before it that “point[ed] in the opposite direction” from its desired conclusions, violating the ESA. *Greater Yellowstone*, 665 F.3d at 1030.

Remarkably, the Service tries to deny the existence of any modeling data beyond 2030, claiming that it could only model the Fort’s impacts through 2030 due to “uncertainty” in predicting the Fort’s future operations. SOF¶67. The GeoSystems Report flatly refutes this false excuse; the report thoroughly estimated Fort-attributable pumping through 2105 based on the Fort’s own instructions about future on-post pumping levels. SOF¶53. So too, Dr. Lacher modeled the impacts of the Fort’s pumping through 2105 based on similar estimates of future pumping. SOF¶61. Clearly, the Service had “enough information” about the Fort’s future groundwater pumping “to include a meaningful analysis of its potential effects.” *See Wild Fish Conservancy v. Salazar*, 628 F.3d 513, 525 (9th Cir. 2010). Yet, it impermissibly and inexplicably disregarded the data in its own files.

The Service’s decision to ignore modeling data beyond 2030 also runs directly contrary to basic hydrological principles. As hydrologists know, there is a “well-documented [] time lag” between groundwater pumping and the subsequent effects on stream flows. SOF¶¶30, 69. The modeling period must therefore “account for the time lag between when changes in pumping or recharge initially would occur and *when they may have an effect on the regional groundwater component of baseflow in the San Pedro River.*” *Id.* (emphasis added). Accordingly, the Fort commissioned the Geosystem

Report, which shows that the Fort's pumping creates an expanding cone of depression that captures baseflows and causes a precipitous decline in the San Pedro and Babocomari Rivers by 2050. SOF¶¶58-60. The Service provides no scientific basis for disregarding these peak declines and cutting short its analysis of the Fort's impacts in 2030. This "head-in-the-sand approach" defies the Service's obligation to use the best available scientific data to assess the significant adverse impacts to listed species. *See Am. Wild Horse Pres. Campaign v. Perdue*, 873 F.3d 914, 931 (D.C. Cir. 2017); *Alaska Oil & Gas Ass'n v. Pritzker*, 840 F.3d 671, 679-81 (9th Cir. 2016) (affirming agency's use of the best available scientific data to assess the impacts of climate change on bearded seal populations in 2050 and 2100).

The Service's failure to consider the best available scientific data resulted in a severe underestimate of the Fort's impacts on baseflows, which "infected" the Service's assertion that the Fort had fully mitigated the impacts of its groundwater pumping. *See Env'tl. Def. v. U.S. Army Corps of Engineers*, 515 F. Supp. 2d 69, 83 (D.D.C. 2007). For example, the Service credited the Fort with obtaining a conservation easement along the Babocomari River, claiming that the easement would retire pumping and thereby increase baseflows by 0.07 cfs in ten years and 0.08 cfs in fifty years. SOF¶72. The Service then concluded that these additional baseflows over the next fifty years would render "insignificant and discountable" the 0.12 cfs decline in baseflows due to the Fort's pumping. SOF¶73. The problem with this analysis, however, is that it assumed Fort's impacts on baseflows would remain constant at 0.12 cfs over the next fifty years. The Geosystem Report squarely contradicts that assumption by demonstrating that the Fort's

pumping causes additional declines of up to 2 cfs by 2050, resulting in multiple sections of the river being “pump[ed] dry.” SOF¶74. Yet, the Service inexplicably failed to account for this 2 cfs decline, even though it falls squarely within the fifty-year analysis period used by the Service. Due to this oversight, there is no basis for the Service’s incorrect assertion that the Fort mitigated the impacts of its groundwater pumping on the Babocomari River. *See Envtl. Def.*, 515 F. Supp. 2d at 83 (“The finding of full mitigation in spite of this omission was arbitrary and capricious.”).

This example also highlights the Service’s use of inconsistent modeling periods to impermissibly “skew[]” the analysis toward less environmental impacts, thereby impeding a “‘full and fair’ discussion of the potential effects of the project.” *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 965 (9th Cir. 2005). As just explained, the Service used a fifty-year modeling period to inflate the long-term benefits of the Babocomari conservation easements. SOF¶72. By contrast, it constrained its analysis of the negative impacts of the Fort’s pumping to 2030, and thereby masked the far-greater, “peak declines” in 2050. This internally inconsistent approach is arbitrary and capricious. *See Gulf Power Co. v. F.E.R.C.*, 983 F.2d 1095, 1101 (D.C. Cir. 1993) (“[W]hen an agency takes inconsistent positions ... it must explain its reasoning.”).

Ultimately, the best available scientific data reveals significant declines in baseflows along both the San Pedro and Babocomari Rivers. Yet, the Service failed to account for that information, leading to an incomplete analysis that masks the adverse impacts of the Fort’s pumping and violates the Service’s obligations to use the best available science. 16 U.S.C. §1533(b)(1)(A).

B. The Service Relied on Illusory Groundwater Savings and Faulty Accounting, Rendering the Biological Opinion Arbitrary and Capricious.

The Service evaded a jeopardy conclusion by asserting that the Fort’s operations would create a “mathematically anticipated ... net groundwater surplus” from 2014 onwards. SOF¶75. To generate that surplus, the Service credited the Fort with 3,661 afy of groundwater savings for obtaining easements on the Preserve Petrified Forest property and the Clinton/Drijvers Ranch. SOF¶76. There are two major flaws with this reasoning, each of which demonstrate that the claimed surplus is illusory. First, the Fort did not retire any agricultural irrigation on the Preserve Petrified Forest property, because irrigation had ceased by 2005 and was highly unlikely to occur again. Second, the Service failed to do its math, relying on faulty accounting to claim groundwater savings where there are none.

1. The Service Failed to Demonstrate that Agricultural Pumping Was Reasonably Certain to Occur on the Preserve Petrified Forest Property.

The ESA prohibits the Service from avoiding jeopardy based on the mitigating effects of future actions that are “not reasonably certain to occur.” *Nat’l Wildlife Fed’n*, 524 F.3d at 935-36. This prohibition ensures that mitigation measures provide benefits that actually “address the threats to the species in a way that satisfies the jeopardy and adverse modification standards.” *Rumsfeld*, 198 F. Supp. 2d at 1152. Accordingly, if the Service relies on a conservation easement to claim credit for retiring a future water use, it must demonstrate that the future water use was reasonably certain to occur absent the easement. Otherwise, the purported savings are “neither reasonably specific nor

reasonably certain to occur,” but rather illusory and insufficient to provide the “necessary biological response.” *Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 839 F. Supp. 2d 1117, 1125, 1128 (D. Or. 2011).

Here, though, the Service failed to demonstrate that the Fort retired any reasonably certain agricultural irrigation on the Preserve Petrified Forest property. As an initial matter, the easement did not retire an “active water use” as irrigation ceased before 2005, almost a decade before the Fort obtained its easement. SOF¶78. As such, the easement does not retire any actual irrigation and thus does “not result in an increase in flows in adjoining streams” by the Service’s own admission. SOF¶82.

Nor did the Service identify any “specific ... plans” demonstrating that agricultural irrigation was reasonably certain to occur in the future. *Nat’l Wildlife Fed’n*, 524 F.3d at 936. To the contrary, the Service acknowledged that it was “uncertain[] . . . when pumping might recommence without the easement,” if ever. SOF¶82.

Accordingly, the easement did not prevent reasonably certain future agricultural irrigation, and thus does not provide the “necessary biological response” to mitigate the adverse impacts to listed species caused by the Fort’s ongoing groundwater pumping of 5,648 afy. *Nat’l Wildlife Fed’n*, 839 F. Supp. 2d at 1128; *see also Salazar*, 804 F. Supp. 2d at 1002 (rejecting “reliance on uncertain and contingent mitigation measures”).

Yet, the Service credited the Fort with an immediate 2,588 afy water offset for the conservation easement it obtained in 2014 based on the fact-free assumption that agricultural irrigation could have recommenced instantaneously on the Preserve Petrified Forest property. SOF¶¶83-84. As an initial matter, this hypothetical assertion is

inconsistent with the approach the Service took in its groundwater modeling. There, the Service *refused* to assume any future irrigation on the Preserve Petrified Forest property in any of its modeling scenarios (i.e., with or without the Fort’s easement) due to the “*uncertainties* of when pumping might recommence without the easement,” if ever. SOF¶82. Indeed, assuming future pumping on the property would have rendered the groundwater modeling arbitrary and capricious due to the “stark disparities” with “real world observations.” *Appalachian Power Co. v. E.P.A.*, 249 F.3d 1032, 1054 (D.C. Cir. 2001). Nonetheless, despite admitting that future irrigation was too uncertain to include in the groundwater model, the Service turned around and made that flawed assumption for the purposes of its water accounting analysis so that it could credit the Fort with retiring thousands of acres of hypothetical future irrigation on the parcel. SOF¶¶83-84. Such “internally inconsistent and inadequately explained” positions render the Service’s analysis arbitrary and capricious. *General Chem. Corp. v. United States*, 817 F.2d 844, 846 (D.C. Cir. 1987).

Furthermore, the Service’s attempt to claim water savings for this easement runs directly contrary to the evidence in the record. It speculated that future irrigation was possible because the “entire irrigation infrastructure remains in place.” SOF¶83. But the evidence squarely refutes that assertion as the property lacks the four center-pivots needed to irrigate crops, which were removed long ago. SOF¶83. The Service provided no evidence of any “clear, definite commitment of resources” needed to purchase that costly, missing infrastructure. *Salazar*, 804 F. Supp. 2d at 1002 (quoting *Nat’l Wildlife Fed.*, 524 F.3d at 936). Indeed, there is no evidence of any plan to undertake agricultural

operations on the property in the future. As a result, there is no factual basis for the Service's hypothetical assumption about future irrigation. *Id.* at 1004.

To the contrary, the facts shows that future agricultural operations were not just speculative and uncertain, but highly unlikely to occur. As documented by the Fort, Cochise County is experiencing a “major trend” of “increased development that is simply urbanizing the formerly rural landscape.” SOF¶79. Consistent with that trend, the Preserve Petrified Forest was zoned for residential development (one residence per four acres), marketed for residential development (just like the adjacent high-end residences and subdivisions), and ultimately purchased for residential development by Cochise County. SOF¶¶80-81. As a residential development, the property could have used, at most, 53.1 afy for the maximum-allowed 161 homes—a small fraction of the purported water savings claimed by the Service for hypothetical irrigation (2,588 afy). *See* SOF¶¶80, 90. These facts contradict the Service's incongruous speculation about future agricultural irrigation and demonstrate that the claimed water savings are not “reasonably certain to occur.” *Nat'l Wildlife Fed'n*, 839 F. Supp. 2d at 1125.

The Service, however, disregarded this contrary evidence and blindly granted the Fort the maximum credit possible for offsetting hypothetical agricultural pumping that was almost certain to never occur. It then relied on that illusory credit to claim an immediate groundwater surplus and avoid a jeopardy finding. Such counterfactual speculation is arbitrary, capricious and contrary to the ESA. *See Bennett*, 520 U.S. at 176 (An agency cannot avoid jeopardy “on the basis of speculation or surmise.”). It also violates the fundamental principle that inadequate mitigation “must be borne by the

project, not by the endangered species.” *Sierra Club v. Marsh*, 816 F.2d 1376, 1386 (9th Cir. 1987), *abrogated on other grounds as recognized in Cottonwood*, 789 F.3d at 1088-91). The easement does not retire a reasonably certain groundwater use, and thus cannot be leveraged by the Fort to paper over its groundwater deficit pumping, which poses a clear threat to the listed species that depend on flows in the San Pedro and Babocomari Rivers for their survival. Without this illusory credit, the Service’s Biological Opinion violates the ESA. *See Rumsfeld*, 198 F. Supp. 2d at 1154 (“Without these measures, there is no factual basis and no rational basis for the [biological] opinion.”).

2. The Service Also Relied on Faulty Accounting to Credit the Fort with Water Savings that Do Not Exist.

Courts routinely invalidate agency decisions that contain “[s]ignificant mathematical errors” that misstate the effects of a proposed action. *See Native Vill. of Chickaloon v. Nat’l Marine Fisheries Serv.*, 947 F. Supp. 2d 1031, 1056 (D. Alaska 2013); *see also Alabama Power Co. v. F.C.C.*, 773 F.2d 362, 370 (D.C. Cir. 1985) (invalidating agency’s use of a mathematical formula that “bears no rational relationship to the determination it purports to make”). Here, the Service relied on a faulty accounting method to overstate the water savings purportedly created by the two agricultural conservation easements (Preserve Petrified Forest and Clinton/Drijvers). SOF ¶¶85-93. Thus, even assuming agricultural irrigation was certain to occur on the Preserve Petrified Forest property—an unfounded assumption contradicted by the record—the Service still violated the ESA by committing a significant mathematical error that misstated the value of the easements.

The Service estimated the purported groundwater savings for the Preserve Petrified Forest and Clinton/Drijvers easements based on the total amount of water that would have been used to irrigate alfalfa. To do so, it used a basic formula that multiplied the acreage of the property by 5.4 afy per acre—the total “water duty” for irrigating alfalfa. SOF¶86. The Service then assumed that each easement would retire all of this agricultural irrigation, and thus granted the Fort with groundwater savings equal to the total groundwater use on both properties. *Id.*

This approach overlooks a critical step as it fails to calculate the *net* groundwater use for each property, which reflects the actual amount of savings created by the easement. Though a farmer might irrigate a field of alfalfa with 5.4 afy per acre, the crop would only consume 3.4 afy per year of that amount—a figure known as the “consumptive use.” SOF¶87. Irrigation in excess of the consumptive use “*returns to the aquifer,*” recharging (i.e. increasing) groundwater levels. SOF¶88 (emphasis added).⁶ It is thus the difference between these two values—the *net* groundwater use—that reflects the amount of groundwater savings created by preventing future irrigation. SOF¶¶88-90.

The Service, however, failed to calculate the net groundwater use for the two agricultural easements—a significant mathematical error that misstated the value of the easements and resulted in a pure windfall benefit to the Fort. It granted the Fort groundwater savings equivalent to the total amount of water hypothetically used to

⁶ This is a well-documented hydrological principle. For example, the USGS groundwater model assumes that at least 30% of agricultural irrigation returns to the aquifer. SOF¶92.

irrigate the Preserve Petrified Forest property—2,588 afy.⁷ SOF¶90. But it failed to recognize that alfalfa would have only consumed 1,632 afy. SOF¶89. The irrigation in excess that amount—960 afy—would have returned to the aquifer and recharged groundwater levels. *See* SOF¶¶88-90. Those return flows must be subtracted from the total amount of pumping to accurately reflect the actual (i.e. net) groundwater use purportedly retired by the easement. *Id.* Indeed, hydrologists routinely carry out this calculation, balancing out these flows to reflect the way the system works. SOF¶¶92-93.⁸ The Service, however, declined to do the math. Instead, it equated the easement’s water savings with total groundwater use—a formula that overstates the actual benefit of the easement by 960 afy and “bears no rational relationship to the determination it purports to make.” *Alabama Power*, 773 F.2d at 367.

The Service committed the same error for the Clinton-Drijvers easement, crediting the Fort with the total amount of groundwater used to irrigate the property (1,073 afy). SOF¶91. In reality, though, that total amount of irrigation would have generated 397.2

⁷ The Service assumed that 480 acres would be irrigated at a rate of 5.4 afy per acre, resulting in a total hypothetical groundwater use of 2,592 afy. SOF¶90. The Service then subtracted 4 afy due to the residential development planned for the property, resulting in its estimate of 2,588. *Id.* At no point did it account for the 960 afy of return flows.

⁸ Hydrologists are keenly aware of the need to account for agricultural return flows whenever they model the effects of agricultural groundwater pumping. For example, to fix errors in the USGS Groundwater Model, Dr. Lacher *removed* incidental return flows on properties where agricultural irrigation had ceased. SOF¶93.

afy of return flows to the aquifer, which the Service failed to account for in its calculations. *Id.*

As a result of its flawed accounting method, the Service overstated the water savings for the two agricultural easements by at least 1,357.2 afy. SOF¶¶90-91. There is thus no basis for the Service’s claim in the Biological Opinion that a “large magnitude of net groundwater surplus” would affect the River in 2014 and thereby avoid jeopardy to listed species, such as the umbel. SOF¶¶75, 100; *see Rumsfeld*, 198 F. Supp. 2d at 1154 (“Without these measures, there is no factual basis and no rational basis for the opinion.”).

In addition, the Service’s flawed groundwater accounting is a textbook example of an agency trying to “have it both ways,” resulting in a misleading and arbitrary analysis. *General Chem. Corp.*, 817 F.2d at 854. To artificially inflate the Fort’s “water savings,” the Service calculated the total groundwater use on the easement properties and failed to net out the 1,357.2 afy of irrigation return flows, as just described. By contrast, to reduce the Fort’s liability under the ESA, the Service carefully subtracted irrigation return flows from the Fort’s own groundwater use to calculate the Fort’s net groundwater use. SOF¶51. For example, the Service reduced the Fort’s total groundwater use by 55 afy for “*Irrigation Return Flow* at Golf Course and Parade Grounds.” *Id.* (emphasis added). The Service thus used patently inconsistent accounting approaches to create the misleading impression of a groundwater surplus that does not exist.

Ultimately, the Fort’s reliance on these flawed accounting techniques has severe implications for not just this Biological Opinion, but future ones. Without the overstated

groundwater savings, the Fort is liable for a significant groundwater deficit, which must be analyzed and addressed to ensure compliance with the ESA. If allowed, though, the Service will continue to claim these non-existent water savings in future consultations, using them to dodge a jeopardy finding and avoid the strict requirements of the ESA. In reality, though, there is no groundwater surplus for the listed species that depend on the San Pedro and Babocomari Rivers for their survival. They will continue to suffer the risk of jeopardy due to the Service's arbitrary reasoning, which simply "enables the Army to sidestep any direct responsibility for addressing deficit groundwater pumping."

Rumsfeld, 198 F. Supp. 2d at 1153. That result violates the Service's obligation under the ESA to ensure the survival and recovery of these species.

C. The Service Failed to Analyze the Cumulative Effects of Climate Change on Groundwater Recharge.

The best available scientific data shows that climate change will significantly reduce groundwater recharge in the Upper San Pedro River basin, exacerbating the impacts of the Fort's groundwater pumping on listed species and critical habitat. SOF¶¶38-47. Yet, the Service simply disregarded these effects by assuming that recharge rates would remain constant at historical levels. SOF¶95. As a result, it failed to analyze an important aspect of the problem in violation of the ESA.

To comply with the ESA, the Service must consider and address the effects of climate change if—as is often the case—the best available information “indicates that climate change will have a significant negative effect on the listed populations of endangered or threatened species.” *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*,

184 F. Supp. 3d 861, 873 (D. Or. 2016). To fulfill this requirement, an agency cannot merely summarize the effects of climate change and then proceed to analyze the proposed action under the assumption that climate change will have no effect. *Wild Fish Conservancy v. Irving*, 221 F. Supp. 3d 1224, 1233-34 (E.D. Wash. 2016). Such an unrealistic approach reflects a “total failure to address, adequately explain, and analyze the effects of global climate change” *in connection with* the proposed action. *Pac. Coast Fed’n of Fishermen’s Ass’ns v. Gutierrez*, 606 F. Supp. 2d 1122, 1184 (E.D. Cal. 2008).

Here, the Service had data quantifying the effects of climate change on groundwater recharge—a critical source of water that sustains the San Pedro River’s year-round flows. Historically, groundwater recharge in the upper San Pedro River Basin has averaged 19,000 afy. SOF¶42. Modeling, however, shows that climate change will reduce recharge in the Upper San Pedro River basin by 1,520 afy in 2030, 2,660 afy in 2050, and up to 5,700 afy by 2100, effectively doubling the adverse impacts of the Fort’s pumping (5,648 afy). SOF¶42, 96. These combined declines pose “potentially severe wide-ranging effects” to listed species in the basin, such as the western yellow-billed cuckoo, which depends on groundwater recharge to maintain surface flows and critical riparian habitat along the San Pedro River. SOF¶¶44-47.

The Service, however, failed to provide any meaningful analysis of these climate-driven declines in recharge. *Pac. Coast Fed’n*, 606 F. Supp. 2d at 1184 (“[A]n agency may not entirely fail to develop appropriate projections where data was available but [was] simply not analyzed.”) (internal quotation marks omitted). The Service relied on the USGS groundwater model for the proposition that the Fort’s pumping would increase

surface flows along the San Pedro River, thereby benefiting species such as the cuckoo. SOF¶73. But the model assumed that recharge rates would remain constant at historical levels—an illogical assumption defied by the best available data quantifying significant declines. *Id.* As a result, the model fails to provide any analysis of the combined impacts of climate change and the Fort’s pumping on groundwater levels, and thereby significantly understates the magnitude of the harm to listed species and their critical habitat. *See Wild Fish*, 221 F. Supp. 3d at 1234 (holding that agency’s use of historic data to model impacts to stream flow violated the ESA by arbitrarily assuming away projected climate-driven declines); *Nat. Res. Def. Council v. Kempthorne*, 506 F. Supp. 2d 322, 367 (E.D. Cal. 2007) (holding that the Service’s conclusions were impermissibly “based in part on the assumption that the hydrology of the water bodies affected by [the projects] will follow historical patterns for the next 20 years”).

The Service acknowledged the model’s failure to address climate change, and yet failed to remedy it with the requisite analysis. SOF¶95. Instead, the Service summarized the severe impacts of climate change in the background section of the Biological Opinion, SOF¶119, and then “proceeds with analysis on the apparent assumption that there will be no change to the hydrology” of the Upper San Pedro River Basin. *Wild Fish*, 221 F. Supp. 3d at 1234-35. As a result, the Fort made no effort to address the groundwater model’s failure to account for the fact that climate change will significantly reduce recharge in the basin and exacerbate the effects of the Fort’s deficit pumping by 2,660 afy by 2050. SOF¶42, 96. Instead, the Service simply analyzed the Fort’s

activities in a vacuum, an approach that violates the ESA. *Wild Fish*, 221 F. Supp. 3d at 1234.

The Service tries to justify its unrealistic approach on the grounds that it would need “significant new watershed modeling” to assess the impacts of climate-driven losses in groundwater recharge. SOF¶96. But that excuse is belied by the available modeling that already predicts and quantifies climate-driven declines in recharge for the Upper San Pedro River basin. SOF¶¶41-42, 96. The agency simply failed to account for those quantified declines anywhere in the analysis of the Fort’s effects to the western yellow-billed cuckoo, Huachuca water umbel, and northern Mexican gartersnake. *See Wild Fish*, 221 F. Supp. 3d at 1234 (“The problem here is that [the agency] included no discussion whatsoever of the potential effects of climate change in the BiOp’s analysis of ... future operations and water use.”). Courts have thus consistently rejected the Service’s attempt to invoke a purported lack of modeling to avoid “any projection as to the synergistic effects of climate change,” as occurred here. *Zinke*, 900 F.3d at 1072. The failure to analyze these combined effects led to an irrational conclusion—constant stream flows in the San Pedro River—that cannot be reconciled with the stark realities of climate change. *See Juliana v. United States*, 947 F.3d 1159, 1164 (9th Cir. 2020) (highlighting the federal government’s disregard for the “substantial evidentiary record” predicting “catastrophic climate change”).

The Service cannot paper over this error by claiming that its analysis includes an additional “buffer” of 72 afy “to provide for the potential for variations in groundwater use due to climate.” SOF¶97. As an initial matter, there is no rational basis for this

purported buffer; it simply rounds the Fort's projected pumping to a square number. *Id.* And even if there were a basis for it, the purported buffer is wholly inadequate. The available modeling data predicts a 2,660 afy decline in recharge due to climate change by 2050—a loss over 35 times larger than the purported buffer. SOF¶96.

Ultimately, the Service had detailed information about the severe impacts of climate change on groundwater recharge in the Upper San Pedro River basin. Yet, it simply ignored that data and failed to consider climate change in connection with the Fort's impacts on the San Pedro River. This “full-speed ahead, damn-the-torpedoes approach” violates the ESA's “policy of institutionalized caution.” *Greater Yellowstone*, 665 F.3d at 1030. By disregarding these impacts, the Service failed to provide a rational connection between the facts found and the choices made. *Id.*

D. The Service Disregarded Short-Term Adverse Effects Based on a Cursory and Counterfactual Analysis.

To comply with the ESA, the Service must demonstrate that any short-term adverse effects will not jeopardize the survival or recovery of a listed species. *See Pac. Coast Fed'n of Fishermen's Ass'ns v. U.S. Bureau of Reclamation*, 426 F.3d 1082, 1094 (9th Cir. 2005) (rejecting agency's no-jeopardy finding for failure to provide adequate, reasoned analysis of short-term impacts on endangered fish despite a positive long-term prognosis). The Service cannot simply conclude that there will be no jeopardy or adverse modification because conditions will be acceptable in a few years. *Id.*; *see also Nat'l Wildlife Fed'n*, 524 F.3d at 935 (holding NMFS violated Section 7 by “ignor[ing] the short-term adverse modification” based on hypothetical future improvements). Yet, the

Service did just that, assuming away the short-term effects to the umbel based on a conclusory analysis that runs contrary to the evidence.

Here, the groundwater model predicted “negative net groundwater demands attributable to the Fort” in 2012 and 2013, which “can be reasonably assumed to reduce discharges to the San Pedro River.” SOF¶98. The result, according to Service, is a “residual, and temporary, reduction” in San Pedro baseflows “beyond 2013” that will cause the endangered Huachuca water umbel “some degree of mortality [and] some associated reduction in occurrence counts and length of occupied critical habitat.” *Id.*

The Service, however, dismissed these impacts based on a cursory analysis that violates the ESA. *Nat’l Wildlife Fed’n*, 524 F.3d at 935. It asserted that any adverse effects “will be within the range of conditions experienced by the species.” SOF¶99. But that throw-away excuse simply ignores the fact that Huachuca umbel populations have decreased to the point that it now is an endangered species much more susceptible to any habitat loss. *Id.* These “current ‘extremely poor’ habitat” conditions cut against the Service’s attempt to downplay the Fort’s impacts on already-degraded streamflows. *Nat’l Wildlife Fed’n*, 524 F.3d at 935. Furthermore, the Service’s analysis contains no discussion of the umbel’s life cycle or biology, or whether degrading habitat along the San Pedro River might have further-reaching effects on the species’ survival and recovery. This was a significant oversight given that the San Pedro River comprises 70% of the critical habitat designated for the umbel’s survival, and thus serves as a lifeline for the species. SOF¶22.

The Service’s analysis runs contrary to the evidence in the record for two additional reasons related to the overarching flaws in the Biological Opinion. First, the Service assumed that the Fort’s impacts to the umbel would be “temporary,” because it modeled a “net groundwater surplus” that would begin to affect the River “in 2014 (or later.” SOF¶¶98, 100. The groundwater modeling, however, shows that the Fort’s pumping will not only reduce stream flows in 2012 and 2013 but will pump dry segments of the river by 2050. SOF¶60; *see supra* at Section I.A.

Second, the Service assumed that the effects to the umbel were insignificant because “a surplus of conservation measure-driven water savings overtakes the negative influence of Fort Huachuca’s water demands on baseflows.” SOF¶100. But the presumed surplus is illusory because the Fort’s easement for the Preserve Petrified Forest property did not retire any active or reasonably certain water uses. It does not provide any benefit, much less the purported immediate benefits in 2014, directly refuting the Service’s reliance on this mitigation measure. *See supra* at Section I.B; *Nat’l Wildlife Fed’n*, 524 F.3d at 935 (rejecting analysis that assumed away short-term effects based on uncertain long-term benefits “without more solid guarantees that they will actually occur.”).

As a result of this flawed and conclusory analysis, the Service failed to demonstrate that the adverse effects to baseflows on the San Pedro River would not jeopardize the water umbel’s survival or recovery. This oversight violates the ESA.

II. The Fort Violated Its Independent Obligation under the ESA to Ensure Its Groundwater Pumping Does Not Jeopardize Listed Species or Adversely Modify Critical Habitat.

Over two decades ago, the Fort acknowledged that it had to undertake “immediate and drastic measures to maintain flows in the San Pedro River” and ensure that its groundwater deficit pumping would not jeopardize listed species in violation of the ESA. *Rumsfeld*, 198 F. Supp. 2d at 1157. Yet, it has continued its years-long pattern of sidestepping that obligation by relying on the Service’s flawed Biological Opinion and even refusing to consult with the Service regarding the adverse effects of its actions on the endangered flycatcher. This conduct violates the Fort’s independent obligations under the ESA.

A. The Fort Violated Section 7 by Relying on a Flawed Biological Opinion.

Section 7(a)(2) prohibits the Fort from undertaking actions that are “likely to jeopardize the continued existence” of any listed species or “result in the destruction or adverse modification of” their critical habitat. 16 U.S.C. §1536(a)(2). Consulting with the Service alone does not satisfy the Fort’s independent duty under the ESA. *See Res. Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1304 (9th Cir. 1993). An agency cannot “abrogate its responsibility to ensure that its actions will not jeopardize a listed species; its decision to rely on a [] biological opinion must not have been arbitrary or capricious.” *Pyramid Lake Paiute Tribe of Indians v. U.S. Dept. of Navy*, 898 F.2d 1410, 1415 (9th Cir. 1990)

Here, though, the Fort violated the ESA by relying on a flawed Biological Opinion that (1) failed to disclose the best available modeling results showing precipitous declines

in surface flows along the San Pedro and Babocomari Rivers, (2) arbitrarily relied on speculative water savings and faulty accounting to create a groundwater surplus where there is none, (3) assumed away the impacts of climate change, and (4) neglected to adequately consider the short-term adverse effects to the umbel. *See supra* at Section I. The Fort was well aware of these errors. For example, it commissioned the GeoSystems Report, which projected “peak declines” in 2050, which were neither disclosed nor analyzed anywhere in the Biological Opinion. By relying on the Service’s incomplete analysis, the Fort violated its substantive duty under section 7 of the ESA “to ensure that its actions will not jeopardize a listed species.” *See Rumsfeld*, 198 F. Supp. 2d at 1157; *Salazar*, 804 F. Supp. 2d at 1010.⁹

B. The Fort Arbitrarily Concluded that Its Operations Would Have No Effect on the Flycatcher and Thus Failed to Consult with the Service.

The Fort must consult with the Service under Section 7 if its operations “may affect” a listed species. 50 C.F.R. §402.14(a). “The minimum threshold for an agency action to trigger consultation ... is low.” *Kraayenbrink*, 632 F.3d at 496. “Any possible

⁹ The Service’s wholesale failure to discuss any of the modeling results beyond 2030 raises the specter that the Fort did not provide the Service with the GeoSystems Report. If that is the case—that the Fort withheld the best available data presented in the GeoSystems Report—then the Fort is liable for violating the ESA. *See Res. Ltd.*, 35 F.3d at 1304 (9th Cir. 1993) (“The Forest Service’s reliance on the [biological] opinion was not justified in light of its failure to provide the” consulting agency with all relevant information.); *Or. Nat. Desert Ass’n v. Tidwell*, 716 F. Supp. 2d 982, 1004 (D. Or. 2010) (same).

effect, whether beneficial, benign, adverse, or of an undetermined character, triggers the formal consultation requirement.” *Ctr. for Biological Diversity*, 698 F.3d at 1124.

Here, though, the Fort avoided consultation for the southwestern willow flycatcher by asserting that its groundwater deficit pumping would have “no effect” on the species or its critical habitat. SOF¶101. This assertion runs directly contrary to the evidence in the record. First, the Fort asserted that there would be no effect to the flycatcher because of the “positive impacts” of the Fort’s water-related conservation and mitigation measures. SOF¶102. But those mitigation measures are illusory, overstated, and do not provide the asserted groundwater surplus. *See supra* at Section I.B. Furthermore, the Fort’s own modeling reveals significant declines in surface flows due to the Fort’s pumping, which will degrade the flycatcher’s critical habitat along the San Pedro River. *See supra* at Section I.A. The Fort must therefore initiate consultation to address the impacts of its groundwater deficit pumping on the flycatcher and its critical habitat. *See Ctr. for Biological Diversity*, 698 F.3d at 1124 (“[T]he groundwater withdrawals at the level contemplated are not ... *de minimis*, and so ‘may affect’ listed fish species”).

Second, the Fort’s own analysis undermines its attempt to deny any effects to the flycatcher. The Fort acknowledged that the flycatcher, like the cuckoo, depend on perennial flows along the San Pedro and Babocomari Rivers. SOF¶103. Indeed, both species have similar habitat requirements that overlap along the San Pedro River. *Id.* The Fort stated its groundwater depletions will cause baseflow declines in suitable cuckoo and flycatcher habitat, but then concluded there will be a possible adverse effect on the cuckoo but no effect on the flycatcher. *Id.* The Fort does not explain why it

reached a different conclusion for the flycatcher when it largely relies on the same habitat that will be negatively affected by groundwater depletions. *Id.* Because any possible effect triggers section 7(a)(2), the Fort’s failure to consult with FWS on the southwestern willow flycatcher violated the ESA. *See Ctr. for Biological Diversity*, 698 F.3d at 1124.

III. The Fort and Service Violated the ESA by Failing to Reinitiate Consultation Despite the Listing of Two Species and Significant New Information.

The Fort and Service had an obligation to reinitiate consultation when the gartersnake and cuckoo were granted full protection under the ESA as listed species in 2014. They also had an obligation to reinitiate consultation to consider new information revealing adverse impacts to listed species and critical habitat. Yet, they failed to do so and instead continue to rely on a flawed Biological and Conference Opinion to avoid compliance with the ESA.

A. The Agencies Failed to Comply with the ESA When the Service Listed the Cuckoo and Gartersnake.

The ESA includes a series of procedural safeguards to ensure that proposed species receive the full protections of the Act once they are listed. Yet, the agencies shirked that careful process when the cuckoo and gartersnake were listed as threatened species. As a result, they have relied on a flawed conference opinion that fails to ensure compliance with the ESA.

1. The Agencies Failed to Comply with the ESA’s Procedures for Protecting Species Once They Are Listed.

The ESA requires action agencies to “confer” with the Service on any action that is “likely to jeopardize the continued existence of any species proposed to be listed” or

any critical habitat “proposed to be designated.” 16 U.S.C. §1536(a)(4); 50 C.F.R. §402.10. To comply with this obligation, the Fort and Service conferred beginning in 2013 regarding the impacts of the Fort’s ongoing operations on the gartersnake and cuckoo, both of which were proposed for listing at the time. SOF¶64. The Service issued a Conference Opinion for these species and a provisional incidental take statement for the gartersnake. SOF¶65.

When both species were subsequently listed, the agencies had two alternate options to comply with the ESA and ensure full protection for these species. The Service could have formally adopted the conference opinion, so long as “no significant new information” was developed or flaws identified in the analysis. 50 C.F.R. §402.10(d); *See* U.S. Fish & Wildlife Serv. and Nat’l Marine Fisheries Serv., Consultation Handbook: Procedures for Conducting Consultation and Conference Activities under Section 7 of the Endangered Species Act (March 1998) at 6-9.¹⁰ Alternatively, the agencies had an obligation to reinitiate consultation and address any oversights in the conference opinion. *See* 50 C.F.R. §402.16(d) (requiring reinitiation of formal consultation if a “new species is listed or critical habitat designated that may be affected by the identified action”).

The agencies, however, failed to comply with either of these options, undermining the ESA’s protections for these species. The Service did not formally adopt its Conference Opinion and cannot do so given the flaws in the analysis identified above.

¹⁰ The Consultation Handbook can be found in the record at FWS015865.

SOF¶¶104-05. Nor did the agencies reinitiate consultation pursuant to 50 C.F.R. §402.16(d) to address the significant new information regarding impacts to the species. Due to this procedural lapse, “there can be no assurance that a violation of the ESA’s substantive provisions will not result.” *See Ctr. for Biological Diversity*, 698 F.3d at 1114.

As a result of this procedural error, the provisional incidental take statement issued for the gartersnake never took effect. SOF¶105; 50 C.F.R. §402.10(d). This means the Fort has been operating for six years in a manner the Service recognized would likely result in the take of northern Mexican gartersnakes. SOF¶¶65, 105. Even assuming the Fort has not already violated section 9’s take prohibition, the Fort’s failure to consult violates section 7 of the ESA, 50 C.F.R. §402.10(d), and 50 C.F.R. §402.16(d).

2. The Agencies Have Continued to Rely on a Substantively Flawed Conference Opinion.

The Fort and Service’s procedural error led them to rely on a substantively flawed Conference Opinion and arbitrarily avoid a jeopardy determination.

As an initial matter, the Conference Opinion asserts that the Fort’s groundwater depletions would actually have a positive impact on the San Pedro River, thereby benefiting both the cuckoo and gartersnake. SOF¶106. But that assertion simply disregarded the available modeling data projecting a precipitous decline in surface flows. *See supra* at Section I.A. The Conference Opinion also overlooked the significant declines along the Babocomari River, claiming that they would only be 0.1 cfs, when in fact the modeling results projected a decline of up to 2 cfs, which the agencies failed to

disclose or mitigate. *Id.* As a result, the conference opinion fails to take into account the adverse impacts to the species and its critical habitat, violating the ESA.

Compounding these errors, the Service arbitrarily dismissed the declines in surface flows along the Babocomari River that it *did* disclose (0.1 cfs). SOF¶108. The Service acknowledged that even a 0.1 cfs decline along the Babocomari would extirpate the fish on which the gartersnake preys in that reach, making it uninhabitable for the snake. *Id.* But it assumed there would be no adverse effects because individual gartersnakes will “either move upstream into more suitable reaches of the Babocomari River (~10 km) or they will move downstream into the San Pedro River in search of more suitable foraging habitat.” *Id.* Both options are a dead end. First, the Service provides no basis for its conclusory assertion that gartersnakes can move over 10 km away to escape the Fort’s effects. SOF¶¶108-09. To the contrary, the Service has repeatedly stated, based on the best available science, that gartersnake’s overland dispersal ability is much more limited—on the order of hundreds of meters, not tens of thousands. SOF¶109. Second, the modeling results show that the Fort’s operations will pump dry segments of the San Pedro River and significantly reduce surface flows, degrading habitat along that river as well. SOF¶110. The Service failed to explain how the gartersnake could survive such conditions, and thereby failed to articulate a “rational connection between the facts found and the choice made.” *Ctr. for Biological Diversity*, 698 F.3d at 1124.

The Service also arbitrarily dismissed the impacts to cuckoo habitat due to the decline in streamflows along the Babocomari River. The Service claimed that any loss of the Babocomari’s cottonwood and willow riparian community due to the loss of

streamflows would be “insignificant and discountable” because this habitat would “likely to be replaced by increased cover” of mesquite. SOF¶111. But that conclusory assertion is of little solace to the cuckoo, which depends almost predominantly on willows and cottonwoods to provide its favorite food—poplar sphinx-moth larvae. SOF¶112. Eliminating that habitat would, in turn, reduce or eliminate this food source. *Id.* Cuckoos also depend heavily on willows for nesting sites, and rarely utilize sub-optimal mesquite habitat. SOF¶113. Yet, the Service disregarded this scientific information and thus failed to analyze how the deterioration in habitat would affect the cuckoo’s nesting and foraging behavior. As a result, the Service overlooked a “relevant factor” to determining whether the Fort’s pumping would result in jeopardy to the species or adverse modification of its proposed critical habitat. *See Ctr. for Biological Diversity*, 698 F.3d at 1124.

Ultimately, the Conference Opinion ignores the best available science and arbitrarily dismisses the declines in surface flows along the San Pedro and Babocomari Rivers. The agencies thus violated the ESA by relying on this flawed analysis and failing to comply with the procedural requirements that ensure full protection for newly listed species.

B. The Fort and Service Violated the ESA by Failing to Reinitiate Consultation to Address Significant New Information.

Section 7 imposes an ongoing obligation on agencies to ensure that they do not jeopardize listed species or adversely modify critical habitat. *All. for the Wild Rockies v. U.S. Dep’t of Agric.*, 772 F.3d 592, 599 (9th Cir. 2014) (noting that federal agencies

involved in continuing operations “retain ongoing responsibility to reinitiate consultation as required”). Accordingly, if significant new information shows that an action may affect listed species or critical habitat in a manner or to an extent not previously considered, the Service and action agency must reinitiate consultation. 50 C.F.R. §402.16(b). Here, though, the Service and Fort failed to reinitiate consultation despite having significant new information revealing adverse impacts to listed species and critical habitat.

First, the Fort’s own data reveals significant shortfalls in its efforts to recharge groundwater. The Biological Opinion avoided a jeopardy determination based in part on the Fort’s commitment to provide 108 afy of groundwater recharge from the Fort’s stormwater capture, 98 afy of stormwater capture at the Palominas Pilot Stormwater Project, and 368 afy of effluent recharge. SOF¶¶115. It has fallen far short of that commitment, providing a mere fraction of the committed recharge over the past five years. SOF¶¶116-18. Without that recharge or the illusory savings claimed for the agricultural easements, *see supra* at Section I.B., the Fort is liable for a significant groundwater deficit, which poses a serious risk to listed species analyzed nowhere in the Biological Opinion. SOF¶¶116-18. The Fort must reinitiate consultation to consider the impacts of these shortfalls on listed species. *See Pacificans for a Scenic Coast v. Cal. Dep’t of Transp.*, 204 F. Supp. 3d 1075, 1092 (N.D. Cal. 2016) (“The loss of this benefit necessarily implies that the project’s net effect on listed species and their habitat will be greater than previously thought.”).

Second, recent studies show that climate change will have a more rapid and severe impact in the Desert Southwest than previously anticipated. In 2007, hydrologists predicted a 5,700 afy decline in groundwater recharge due to the projected temperature increase of 3.7 to 5.9 degrees Fahrenheit by the end of the century. SOF¶120. Recent studies predict an even greater temperature increase of 4.8 degrees by *mid*-century and 8.65 degrees by the end of the century. *Id.* Due to these accelerating timelines, climate change will impact listed species “in a manner or to an extent not previously considered,” thus requiring the agencies to reinitiate consultation. 50 C.F.R. §402.16(b). This is all the more true since the Service never analyzed the combined effects of the Fort’s pumping and climate change on groundwater levels. *See supra* at Section I.C.

Third, additional modeling shows that Fort-attributable pumping will cause significant declines in baseflows and groundwater elevations along the San Pedro and Babocomari Rivers. In 2019, Dr. Robert Prucha and Integrated Hydro updated the USGS groundwater model and ran a forward simulation through 2100. SOF¶121. The modeling results show significant declines along the Babocomari (0.7 cfs) and the San Pedro Rivers (1.3 cfs) by 2100. *Id.* These results exceed the projected declines in the GeoSystems Report for 2100, which the agencies neither disclosed nor analyzed in the Biological Opinion, either. SOF¶¶58-60, 67. Furthermore, the modeling projects significant declines in groundwater elevation under the Babocomari River, which could degrade sensitive riparian habitat. SOF¶122. The Service has not analyzed this new modeling data, which contradicts its faulty assumption in the Biological Opinion that the Fort’s pumping would increase groundwater elevations. SOF¶123.

For these reasons, the agencies thus have an obligation to reinitiate consultation and address the impacts of the Fort's groundwater deficit pumping. Without that analysis, there is no way to ensure the Fort has taken the requisite "immediate and drastic measures to maintain flows in the San Pedro River" and ensure that its groundwater depletions do not jeopardize listed species, adversely modify critical habitat, or preclude recovery in violation of the ESA. *Rumsfeld*, 198 F. Supp. 2d at 1157.

CONCLUSION

For the foregoing reasons, the Conservation Groups respectfully request that the Court grant their motion for summary judgment, vacate the Biological Opinion, and direct the agencies to reinitiate consultation and fix the fatal errors in their analysis.

Respectfully submitted this 13th day of November, 2020,

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STATEMENT REGARDING ORAL ARGUMENT

The Conservation Groups believes that oral argument would be beneficial given the factual complexity of the case and the significant issues regarding the ESA and APA.

CERTIFICATE OF SERVICE

I hereby certify that on November 13, 2020, I electronically transmitted the foregoing and all exhibits to the Clerk's Office using the CM/ECF System for filing and transmittal of a Notice of Electronic Filing to all CM/ECF registrants.

/s/ Stuart Gillespie

CERTIFICATE OF COMPLIANCE

I hereby certify that the above memorandum complies with the 14,000-word limit set in this Court's Order of August 18, 2020, ECF No. 14.

/s/ Stuart Gillespie